

EXHIBIT 5

Pages 1 - 121

UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

Before The Honorable James Donato, Judge

IN RE GOOGLE PLAY STORE)
ANTITRUST LITIGATION) NO. 21-md-02981 JD
_____)

San Francisco, California
Tuesday, July 19, 2022

TRANSCRIPT OF PROCEEDINGS

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Also Present:

Michelle M. Burtis, Ph.D.
Hal J. Singer, Ph.D.
Nathan Hatch

Tuesday - July 19, 2022

2:00 p.m.

P R O C E E D I N G S

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THE CLERK: Now calling Civil Case 21-md-2981, In Re Google Play Store Antitrust Litigation.

THE COURT: Okay. Welcome. Let's see. Who do we have? Who's here?

DR. BURTIS: Hi, Your Honor. I'm Michelle Burtis.

THE COURT: Dr. Burtis.

DR. BURTIS: Yes.

THE COURT: Okay. And who is this?

MR. HATCH: My name is Nathan Hatch. Nathan Hatch. I'm helping with the slides.

THE COURT: All right. And you're with Dr. Burtis?

MR. HATCH: Yes.

THE COURT: You're not an attorney?

MR. HATCH: No.

THE COURT: Okay. Oh, if you're fully vaccinated and you're comfortable, you can remove your masks. It's totally up to you, but you're certainly welcome to do that.

And for plaintiffs?

DR. SINGER: Your Honor, Hal Singer.

THE COURT: We have to use the mics.

DR. SINGER: Hal Singer, Your Honor, for plaintiffs.

MR. DALLAL: And, Your Honor, my name is James Dallal. I

1 am an attorney, but we do not have any non-attorney members in
2 our team. So my role in this proceeding will be limited to the
3 slides.

4 **THE COURT:** You're just handling the slides.

5 Okay. All right. Well, I'm here for one of my favorite
6 types of hearings. So here is our format. We're going to
7 swear you in. And we'll begin with plaintiffs. I have the
8 list of topics that you two negotiated in descending order of
9 criticality, importance; right? Okay. And I'm going to set
10 the stage with a question of my own that I want both of you to
11 focus on as you go through this.

12 And then, at the end of it, I'll ask if there are any
13 lawyers who have questions. You can come up and make an
14 appearance and ask your questions. Whether I let you ask the
15 questions or not, we'll see; but I'll certainly let you pose
16 the question.

17 Okay. Let's begin. So you can stay seated, or you can
18 stand at the podium, either way. But just have a microphone in
19 front of you. Otherwise, we won't be able to hear you. Okay?

20 All right. Bhavna, would you swear in the economists.

21 **THE CLERK:** Yes.

22 Please raise your right hand.

23 (Dr. Burtis and Dr. Singer placed under oath.)

24 **DR. BURTIS:** I do.

25 **DR. SINGER:** I do.

1 pass-through analysis.

2 **DR. SINGER:** Can I respond?

3 **THE COURT:** Please. Yes.

4 **DR. SINGER:** I just want to make sure. She didn't want to
5 use the name of the developer. Would you like me to suppress
6 the name of the developer here as well?

7 **THE COURT:** It's okay. You can use the name, if you'd
8 like.

9 **DR. SINGER:** Okay. It's iHeartRadio. And this is
10 really important. Okay?

11 Well, because you made a mistake in the graph. All right?
12 It happens.

13 But if you could flip back and forth, please, between
14 Exhibit -- this slide and the following slide, you're going to
15 show that Dr. Burtis stumbled on two different prices in the
16 data set for iHeartRadio.

17 I'm going to move over here, Your Honor. Are you going to
18 be able to hear me if I move over, or should I just stay put?
19 I'll stay put.

20 **THE COURT:** Just stay there.

21 **DR. SINGER:** If you look at the iHeartRadio on Exhibit 17,
22 you'll see it at 4.99. 4.99. Now, if we could flip back,
23 please, to the prior slide, you'll see it at 5.99. How could
24 this happen? Right?

25 It happened because Dr. Burtis is so singularly fixated

1 with a SKU analysis, she missed the fact that iHeartRadio
2 introduced a lower price at 4.99 in response to Google dropping
3 its take rate in July of 2017 from 30 to 15 percent. This was
4 a special deal that they calculated -- that they struck.

5 And in response to the deal, if I could show Your Honor, I
6 went back -- when I saw this discrepancy when we got the
7 exhibits, we went back into the database --

8 **THE COURT:** Let me just make sure I understand.

9 **DR. SINGER:** -- and we calculated --

10 **THE COURT:** Hold on.

11 **DR. SINGER:** Excuse me.

12 **THE COURT:** Let me make sure I understand. So you're
13 saying on page 16, this is iHeartRadio. On page 16, she has it
14 priced at 5.99.

15 **DR. SINGER:** Yes.

16 **THE COURT:** And that predates -- that's the pre-15 percent
17 reduction price.

18 You found that after the 15 percent was implemented by
19 Google, they actually dropped their price to 4.99?

20 **DR. SINGER:** Let me tell you exactly what I found. Both
21 prices exist in the database, but iHeartRadio started selling
22 the 4.99 on the Google Play Store app as opposed to the
23 4.99 [sic]. Here's how I know.

24 As soon as I saw the discrepancy of 4.99 to 5.99, I went
25 into the sales data, the transaction data; and I took a

1 weighted average of what iHeartRadio was making for the
2 product iHeart Plus -- right? -- which contains multiple
3 SKUs.

4 The reason why she missed it is because all of her
5 analyses are SKU focused and this contaminates everything that
6 she does. She's missing the forest for the tree.

7 May I draw what happened?

8 **THE COURT:** This is endemic to her analysis.

9 **DR. SINGER:** Endemic to her analysis.

10 May I draw what happened, Your Honor, after December 2017
11 on --

12 **THE COURT:** Sure. Yes.

13 **DR. SINGER:** So the weighted average starts falling from
14 5.99 to 4.99, and it asymptotes -- which is a fancy word --

15 (Court reporter clarifies.)

16 **DR. SINGER:** I'm sorry. I got so excited about this
17 example.

18 It asymptotes at 4.99. It's a fancy word for it
19 approaches and then it basically hovers at 4.99.

20 So what I've done, Your Honor, I've drawn this on for you.
21 And if I could just introduce it. May I just pass it up to
22 you? Is that okay?

23 **THE COURT:** Sure. Hand it to the CRD.

24 (Document handed up to the Court.)

25 **THE COURT:** Thank you. Okay.

1 **DR. SINGER:** And so this is the takeaway, Your Honor, from
2 this whole exercise. I assert that with the exception of five
3 cherry-picked examples, all of Dr. Burtis's analyses focus on
4 too narrow of a window: one month or six months and then
5 she's done this life of the SKU, which is four to eight months.

6 She comes back with five cherry-picked examples, which, by
7 the way, shouldn't surprise you in a database of hundreds of
8 thousands of apps and millions of transactions that she can
9 find five. But even on her favorite, the iHeartRadio, it
10 actually shows example of pass-through.

11 Can I show you how it performs relative to the --

12 **THE COURT:** Very quickly. This is a little more granular
13 than I actually find useful. Just round it out. Then I want
14 to ask my next big question.

15 **DR. SINGER:** May I go --

16 **THE COURT:** Sure.

17 **DR. SINGER:** Can I go to the flip chart?

18 **THE COURT:** Yeah. Use the whiteboard.

19 **DR. SINGER:** So the question is: What does the logit
20 model predict for iHeartRadio when it realizes a reduction in
21 the take rate from 30 to 15 percent? Let me show you exactly
22 what the logit model predicts.

23 The logit model says, start with the original price of
24 5.99 -- right? -- and subtract one minus the developer's share
25 within the category.

1 We didn't get to talk about these, but Google picked the
2 categories by design, and then app developers select into that
3 category in a way to position themselves in the marketplace.
4 All right?

5 I calculate that iHeartRadio's share within the category
6 is 7 percent. So the logit model would predict that its
7 pass-through would be one minus 7 percent. Right? And it
8 saved 15 percentage points on that original price of 5.99.
9 That's what the logit model would predict. And if you grind
10 through the math, you get a predicted price of \$5.15. That's
11 what the logit would predict. Right? In the real world, they
12 dropped their price to \$4.99 -- right? -- which is off by 16
13 cents. Right?

14 But this is her favorite example. And her favorite
15 example confirms the predictive power of the logit here.

16 **DR. BURTIS:** May I respond?

17 **THE COURT:** Please.

18 **DR. BURTIS:** Okay.

19 **THE COURT:** Then we're going to move on. But go ahead,
20 yeah.

21 **DR. BURTIS:** So -- so the graph on my Slide 16, there are
22 people who are buying at 5.99. So those people who
23 purchased -- this isn't a made-up line. There are transactions
24 that occur at 5.99. So --

25 **DR. SINGER:** Yeah.

1 **DR. BURTIS:** I'm sorry.

2 Dr. Singer's claim here is that in over 450,000 of these
3 SKUs, you know, all of these developers, even if they only had
4 one SKU, introduced another SKU, and then somehow there was a
5 weighted average that explains everything. So I -- he did
6 not -- he certainly did not make that claim in his report, in
7 his reply report, Your Honor. You know, he did not show -- he
8 certainly did not establish that.

9 The last thing I do want to say is, going back to his
10 formula, the one minus the share formula is wrong. Okay? If
11 he wanted -- if he's trying to prove something with his
12 formula, he needs to use the formula that actually works. Even
13 with the logit model, it has a service fee rate. And it is not
14 that formula.

15 So, and we can go through and I can explain to you why
16 that is, but that is the wrong formula.

17 **THE COURT:** All right. I think that's covered enough on
18 your part.

19 Here's how I want to close this out. I am tentatively,
20 more or less, comfortable with the service -- the developers
21 side of the platform, two-sided platform, all right, in terms
22 of calculating a but-for rate.

23 What is much less clear to me, Dr. Singer, is why a
24 developer would have passed through to the consumer any savings
25 that would have been the result of a reduced rate charged by

1 limited variation in the take rates -- remember, 92.4 percent
2 of the transactions are always at 30; right? -- and then when I
3 learned about the impediments that Google threw up in terms of
4 subscription products not being able to drop their prices and I
5 learned that many -- and I was cognizant of the fact that many
6 of these drops occurred way late in the class period, some of
7 them in 2021, 2022, we're trying to simulate a world where we
8 have a permanently lower reduction in take rate from Day 1 back
9 in. Right?

10 And so I looked at that and I made the determination that
11 that was the wrong path to go down. I decided that I needed to
12 characterize the demand the developers faced, and I went out
13 and tested logit, linear --

14 **MR. RAPHAEL:** Dr. Singer, I asked you how many times --
15 for how many products you analyzed when the service fee went
16 down, whether the price changed. Is the answer to my question
17 zero?

18 **DR. SINGER:** In my initial report, the answer is zero; but
19 because I wrote a reply report, I had to do an analysis of the
20 botched experiment in Dr. Burtis's report.

21 **MR. RAPHAEL:** Thank you, Dr. Singer.

22 Now, Dr. Singer, your formula is based on a logit demand
23 model?

24 **DR. SINGER:** My pass-through formula is based on the logit
25 demand model that I tested and confirmed best characterizes the

1 demand faced by apps.

2 **MR. RAPHAEL:** Right. And one feature of a logit demand
3 model is that all goods in the market where demand is being
4 measured are substitutes; is that right?

5 **DR. SINGER:** I think that all goods have to be substitutes
6 to some extent. And that could be a very light extent. There
7 could be --

8 **MR. RAPHAEL:** In fact, it's very particular, isn't it,
9 Dr. Singer? In a logit model, all of the goods in the market
10 being studied have to be substitutes in proportion to their
11 shares of that market; isn't that correct?

12 **DR. SINGER:** I think that's fair, yes.

13 **MR. RAPHAEL:** And is it your opinion in this case that all
14 apps in every Google Play category are substitutes in perfect
15 proportion to their share?

16 **DR. SINGER:** Not in perfect proportion. But the P-values
17 on that coefficient that relates price or predicted price -- we
18 use tax rates, Your Honor, to predict a price in Stage I as an
19 instrument -- on the apps share, every one of them with the
20 exception of transportation was statistically significant at
21 the highest levels. That's telling you that the prediction of
22 a logit is true in this case. It didn't have to be true. And
23 had I gotten the wrong sign or insignificant coefficients, I
24 would have gone looking for a different demand system.

25 **MR. RAPHAEL:** Dr. Singer, is it your opinion that every

1 app in each Google Play category is a substitute?

2 **DR. SINGER:** I don't think that every one is a good
3 substitute necessarily. I think Microsoft Excel and Microsoft
4 PowerPoint are in the productivity category. Does that mean
5 the category is defined insanely? No, because Microsoft has a
6 cluster or a package of productivity apps that goes up against
7 Google's package of productively apps.

8 So it doesn't surprise me that you can find some silly
9 examples -- Thomas the Train and Doom -- you can find some
10 silly examples that probably aren't close. But if you're right
11 and that's what generally characterizes the data, that is, if
12 Google just willy-nilly slapped these categories together and
13 you just have a random collection of apps, then when I go to
14 estimate the logit model, Your Honor, the fit, the goodness of
15 fit would be zero. The P-values -- right? -- wouldn't be as
16 good as they are. They wouldn't be statistically significant.

17 That's confirmation that the categories, as designed by
18 Google in the ordinary course of business, which is also very
19 similar to what Apple's categories looked like, are meaningful.
20 They are a meaningful arena of competition around which one can
21 use for estimating shares for the logit model.

22 **MR. RAPHAEL:** But they're not substitutes, are they?

23 **THE COURT:** I don't have a problem with that. I think
24 that's fine.

25 Okay. One or two more questions, Mr. Raphael.

1 **MR. RAPHAEL:** Sure, Your Honor.

2 I guess my last question to you, Dr. Singer, is -- I just
3 want to confirm this -- is that you've never used the formula
4 that you used in this case to calculate pass-through in any
5 other case. That's correct?

6 **DR. SINGER:** I think -- I think what I told you in my
7 deposition -- and same answer now -- is that I've been doing
8 mostly monopolization. I've been blessed, including in the
9 pork case, to have variation in the wholesale rates so that I
10 could exploit that variation by going and looking at changes in
11 retail prices.

12 When you're confronted with a new empirical problem or
13 puzzle, you can't always go back to the thing that you've done
14 in the past. Sometimes you have to have a new tool. And
15 fortunately, economics has given us the perfect tool for this
16 kind of problem.

17 **THE COURT:** Well, I think the point is, for me at least,
18 is total novelty is always -- judges don't like it.

19 **DR. SINGER:** It's not total novelty, Your Honor. The
20 logit is one of the most commonly used --

21 **THE COURT:** I know the logit is, but not the way it's
22 being used here. I'm not saying it's an indictment, but it
23 does require a little more explanation.

24 **DR. SINGER:** I think that --

25 **THE COURT:** Okay. I'm going to have you all in -- I think